

# PENDLETON FIRE WEATHER OPERATING PLAN 2010

## **LOCATION:**

National Weather Service Office  
2001 NW 56th Dr.  
Pendleton, OR 97801  
Office website: [www.weather.gov/pendleton](http://www.weather.gov/pendleton)

## **CHANGES FOR 2010:**

- Begin use of a bulleted Fire Weather Watch / Red Flag Warning format (refer to the 2010 Pacific Northwest Fire Weather Annual Operating Plan for product example)
- Consolidation of Land Management Season shifts and Fire Season shifts into Fire Weather Shifts
- Elimination of Land Management Forecast format with sole focus on Fire Weather Planning Forecast (Fire Season) format
- Modified Red Flag Warning dissemination call list to reflect Pendleton Dispatch and Northeast Oregon Dispatch being combined into Blue Mountain Interagency Dispatch
- Fire Weather Desk staffing configuration

## **OFFICE HOURS:**

The Pendleton Fire Weather Program is committed to a program with staff trained to respond to incident needs 24 hours per day. Fire Weather shifts are currently scheduled during the following times with end dates remaining flexible to meet conditions and the needs of the community:

Spring / Fall Burning Seasons: 7:00 AM - 4:00 PM Monday - Friday  
March 29th – May 21st and September 13<sup>th</sup> – November 5<sup>th</sup>

Summer Peak Wildfire Season: 7:00 AM - 4:00 PM 7 days a week  
May 22<sup>nd</sup> – September 11<sup>th</sup>

The National Weather Service office in Pendleton is open 24 hours a day, 7 day a week and is fully staffed. **However, under the provisions of the Interagency Agreement for Meteorological Services, special services provided by the Pendleton Fire Weather office will be done on a reimbursable basis.**

## **OFFICE PHONE NUMBERS (all available 24-hours):**

|                   |                |
|-------------------|----------------|
| Fire Weather Desk | (541) 276-8134 |
| General           | (541) 276-4493 |
| Fax               | (541) 276-8253 |

## **STAFF:**

| <u>Name</u>     | <u>Position</u>                    | <u>email Address</u>     |
|-----------------|------------------------------------|--------------------------|
| Mike Vescio     | Meteorologist-in-Charge            | michael.vescio@noaa.gov  |
| Dennis Hull     | Warning Coordination Meteorologist | dennis.hull@noaa.gov     |
| Jon Mittelstadt | Science and Operation Officer      | jon.mittelstadt@noaa.gov |
| Jon Bonk        | Fire Weather Program leader        | jon.bonk@noaa.gov        |

All forecasters are certified to issue spot forecasts and will remain annually proficient. Jon Bonk and Robert Cramp will provide the majority of Fire Weather Planning forecasts through fire season, with remaining shifts filled by the following certified fire weather forecasters.

| <u>Name</u>     | <u>Position</u>  |
|-----------------|--|
| Jon Bonk        | Fire Weather Program Leader / Journeyman Forecaster / IMET |
| Robert Cramp    | Journeyman Forecaster                                      |
| Joe Solomon     | Senior Forecaster / IMET                                   |
| Mary Smith      | Senior Forecaster  |
| Gordon Hepburn  | Senior Forecaster  |
| Diann Coonfield | Journeyman Forecaster                                      |
| George Perry    | Journeyman Forecaster                                      |

## **COMMUNICATIONS:**

All forecasts, including spot forecasts, are disseminated through the National Weather Service communication system, WIMS, and on Pendleton's Internet home page ([www.weather.gov/pendleton](http://www.weather.gov/pendleton)). Forecasts can also be faxed to customers who do not have access to these systems.

## **WEATHER BRIEFINGS:**

Internet based weather briefings will be held at 0930 PDT beginning in May. During spring and fall burning seasons, briefings will be held on Monday, Wednesday, and Friday. During peak fire season, normally mid June-September, briefings will be held daily. Please contact Jon Bonk at (541) 276-8134, for information on how to join the briefing.

Phone briefings are always available 24 hours per day, year round, by calling the fire weather desk.

## **AGENCIES SERVED:**

### **USFS: United States Forest Service;**

Deschutes National Forest, Mt. Hood National Forest, Ochoco National Forest, Umatilla National Forest, Malheur National Forest, Wallowa-Whitman National Forest.

### **BLM: Bureau of Land Management;**

Burns, Vale, Prineville, Spokane

**NPS: National Park Service & Scenic areas;**

John Day Fossil Beds National Monument, Whitman Mission National Historic Site, Columbia River Gorge Scenic Area

**BIA: Bureau of Indian Affairs;**

Umatilla Indian Agency, Warm Springs Indian Agency, Yakama Indian Agency

**USF&W: United States Fish and Wildlife;**

Hanford Reach National Monument & Saddle Mountain Refuge, Mid-Columbia Wildlife Refuge Complex (Cold Springs, McNary, McKay, Umatilla & Toppenish)

**ODF & DNR: State Forestry Departments;** Oregon Department of Forestry (Northeast Oregon District, Central Oregon District & Walker Range District), Washington Department of Natural Resources Southeast Division

**County and Local Fire Jurisdictions in southeast Washington, central and northeast Oregon**

**Dispatch Centers;** Burns, Central Oregon, Central Washington, Blue Mountain, Columbia Cascade, Hanford fire, Warm Springs BIA and Yakama BIA.

**FORECAST SERVICES:**

**Forecast Grids:**

A standard set of core weather element grids are produced twice daily at a minimum and are updated as forecast conditions change. These core grids include elements having specific impact on fire behavior: Wind, Relative Humidity, Temperature, Weather (rain, snow, thunderstorms, etc.), Mixing Height, Transport Wind, Haines Index, and Lightning Activity Level (LAL). Additionally, this office produces Ventilation Index, and several Fire Weather Threat Index grids which attempt to graphically illustrate the potential for Red Flag criteria being met under the Wind/RH and Haines/RH categories.

**Fire Weather Watch and Red Flag Warnings:**

Specific Red Flag criteria differ for each situation and district. The following are criteria that would warrant the issuance of a Fire Weather Watch or Red Flag Warning in the Pendleton Fire Weather Districts:

*Criteria:*

Fire Weather Watches or Red Flag Warnings are issued when the fuels will readily burn and weather conditions will promote extreme burning. The three steps below are forecaster guidelines for determining the need for a watch or warning.

1. Refer to GACC "Dryness Level" for initial fuel moisture evaluation. Levels should be at a (Yellow) or higher (Brown).
2. The forecaster is required to check with fire/land management agencies to ensure fuels are dry and considered critical enough to carry or spread fire.
3. Forecasters should have a high degree of confidence (60% for watch, 80% warning) that the weather event will occur.

Any one, or a combination of the following events combined with very dry fuels are criteria for the issuance of a Fire Weather Watch or a Red Flag Warning depending on the lead time:

- **LIGHTNING:** Abundant lightning (scattered thunderstorm coverage or greater) in conjunction with sufficiently dry fuels (fuels remain dry or critical during and after a lightning event). Warnings not needed for isolated coverage.
- **DRY & UNSTABLE AIRMASS:** High elevation Haines Index of 6 in combination with RH of 15% or less over half or more of a zone.
- **WIND & LOW HUMIDITY:** Significant sustained winds combined with low relative humidity (this includes significant dry cold frontal passages) which meets the criteria as defined below simultaneously at two or more locations for two consecutive hours.

**Zone 609:** criteria is RH 20% or less **AND** wind speed 10 mph or greater at **TWO** RAWS sites (including Grayback) or other supplementary stations.

**Zone 610:** criteria is RH 15 % or less **AND** wind speed of 10 mph or greater at **TWO** RAWS sites (including Haystack) or other supplementary stations.

**Zone 611:** criteria is RH of 15 % or less **AND** wind speed of 10 mph or greater at **TWO** RAWS sites (including Timothy) or other supplementary stations.

**Zones 630, 631, 632, 633, 634, 635, 638, 675 & 681:** Refer to Table A below.

**Table A.** National Weather Service Pendleton Wind vs. RH Red Flag / Fire Weather Watch Criteria Table

Note: This is only one element in determining the necessity for a Red Flag Warning or Fire Weather Watch and shall not be the solitary justification.

**Columbia Basin ZONES 631 & 675**

|    |     | SUSTAINED 20 FT WIND OVER WIDESPREAD AREA<br>(10 MINUTE AVERAGE in MPH) |    |    |    |     |
|----|-----|---|----|----|----|-----|
|    |     | 10  | 15 | 20 | 25 | 30+ |
| RH | 30% |   |    |    |    | W   |
|    | 25% |   |    |    | W  | W   |
|    | 20% |   |    | W  | W  | W   |
|    | 15% |   | W  | W  | W  | W   |
|    | 10% |   | W  | W  | W  | W   |

**The Central and Northeast Mountains ZONES 630...632-635...638 AND ZONE 681**

|    |     | SUSTAINED 20 FT WIND OVER WIDESPREAD AREA<br>(10 MINUTE AVERAGE in MPH) |    |    |    |    |     |
|----|-----|---|----|----|----|----|-----|
|    |     | 10  | 15 | 20 | 25 | 30 | 35+ |
| RH | 30% |   |    |    |    |    |     |
|    | 25% |   |    |    |    | W  | W   |
|    | 20% |   |    | W  | W  | W  | W   |
|    | 15% |   |    | W  | W  | W  | W   |
|    | 10% |   | W  | W  | W  | W  | W   |

**Central Oregon Zone 630 south of the Maury Mountains**

|    |     | SUSTAINED 20 FT WIND OVER WIDESPREAD AREA<br>(10 MINUTE AVERAGE in MPH) |    |    |     |
|----|-----|---|----|----|-----|
|    |     | 15  | 20 | 25 | 30+ |
| RH | 20% |   | W  | W  | W   |
|    | 15% |   | W  | W  | W   |
|    | 10% | W   | W  | W  | W   |

***Red Flag Warning Dissemination:***

Red Flag Warnings and Fire Weather Watches shall be issued using the Fire Weather Message (PDXRFPDPT) and will also be headlined in the routine Fire Weather Forecast. All Red Flag Warnings and Fire Weather Watches will be cancelled using the Fire Weather Message (PDXRFPDPT) and the Fire Weather Forecast will include a headline stating such. All Red Flag Warnings will be disseminated utilizing the National Warning System (NAWAS) network.

All issuances of Red Flag events will be coordinated beforehand with the agencies included in the watch/warning area, adjacent fire weather offices if the watch/warning is for a zone on a common district boundary, the Northwest Geographic Coordination Center (NWCC), and the NOAA/NWS Storm Prediction Center Fire Weather Desk. A priority calling list has been established in order to rapidly disseminate Fire Weather Watches/Red Flag Warnings, or other information of rapidly changing or hazardous weather conditions that do not necessarily meet Red Flag criteria, but will affect fire control or pose a safety threat. **NWS Pendleton will contact the dispatch offices affected by warnings who will then contact other affected land management agencies in those zones as established in the following Table.**

Red Flag Warning dissemination call list to Dispatch Centers

| <u>NWS PDT</u>                            |   |  |   |              |              |               |              |              |
|---|---|--|---|--------------|--------------|---------------|--------------|--------------|
| <u>BMIDC</u>                              |   | <u>ORCOC</u>   | <u>ORJDC</u>                                    | <u>WACCC</u> | <u>WACWC</u> | <u>WAHANN</u> | <u>ORWSC</u> | <u>WAYAC</u> |
| UMF<br>97S PDT<br>UMA BIA<br>CTUIR<br>WMP | WWF<br>97S LGD<br>97S BKE<br>97S WAL<br>VAD BLM | DEF<br>OCH<br>95S ODF<br>99S WRP<br>PRD BLM<br>ODF TDL | 95S JDY<br>BFZ→BUD<br>JDP<br>MAF<br>UMF-Heppner | MHF<br>CGF   | SES<br>MCR   | HFD           | WSA          | YAA          |
| Zone<br>WA =<br>Washington<br>OR = Oregon | BMIDC   | ORCOC  | ORJDC   | WACCC        | WACWC        | WAHANN        | ORWSC        | WAYAC        |
| WA 609                                    |   |  |   | ▲            | ▲            | ▲             |              |              |
| OR 609                                    |   | ▲  |   | ▲            |              |               |              |              |
| 610                                       |   | ▲  |   |              |              |               | ▲            |              |
| 611                                       |   | ▲  |   |              |              |               |              |              |
| 630                                       |   | ▲  |   |              |              |               |              |              |
| WA 631                                    | ▲   |  |   |              | ▲            | ▲             |              |              |
| OR 631                                    | ▲   | ▲  |   |              |              | ▲             |              |              |
| 632                                       | ▲   | ▲  | ▲   |              |              |               |              |              |
| WA &<br>OR 633                            | ▲   |  |   |              |              |               |              |              |
| 634 & 635                                 | ▲   |  |   |              |              |               |              |              |
| 638                                       | ▲   |  |   |              |              |               |              |              |
| 675                                       |   |  |   |              | ▲            | ▲             |              | ▲            |
| 681                                       |   |  |   |              |              |               |              | ▲            |

▲ Indicates to call Dispatch Center(s) based on which zone(s) warning(s) issued for:

BMIDC = Blue Mountain Interagency Dispatch  
 ORCOC = Central Oregon Dispatch  
 ORJDC = John Day Dispatch  
 WACWC = Central Washington Dispatch  
 WAHANN = Hanford Fire  
 WACCC = Columbia Cascade Dispatch  
 ORWSC = Warm Springs BIA Dispatch  
 WAYAC = Yakama BIA Dispatch

**Spot forecasts/FARSITE/Special request Forecasts:**

Spot forecast and **FARSITE weather data** are available year round for wildfires, prescribed fires, or any other critical land management activities conducted by ALL land management agencies. The NWS will support non-federal, non-wildfire activities such as HAZMAT and search and rescue. We are urging land managers to customize spot forecast requests for the parameters that are needed and provide critical weather thresholds that may adversely impact the burn, such as wind, relative humidity, or burn period. This will allow the forecaster to concentrate on the specific data and time line needed rather than a host of parameters that may be of little interest. Spot forecasts take precedence over normal office duties. **As implemented in 2003, the Region 6 National Weather Service offices will: require at least one observation from the fire site for prescribed spot requests. In addition, valid times for spot forecasts will be 12 hours from issuance.**

Information required by the fire weather forecaster from the requesting agency is found on our internet web site: <http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pdt> NWS form D-1, items 1-12, can be used for fax requests.

Feedback of how well the forecast verified is extremely valuable in order to provide more accurate subsequent forecasts. As such, the forecasters in Pendleton request all observations taken from the burn site be sent to our office. This may be accomplished through FAX or electronically.

**Fire Weather Planning Forecasts:**

Fire Weather Planning forecasts are routinely issued when the Fire Weather desk is staffed. They are available twice a day Monday through Friday by 0900 and 1530 PDT during the spring/fall burning seasons and 7 days a week during peak fire season.

**NFDRS Forecasts:**

A numerical forecast is prepared and disseminated to WIMS by 1540 each afternoon from June through September. The forecasts are used to compute the expected NFDRS indices valid for the following day. The number of NFDRS indices forecast by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies. If observations are not entered into WIMS by 1500, a forecast for the following day will not be produced for those stations.

**INCIDENT METEOROLOGIST SERVICES:**

NWS Pendleton has certified Incident Meteorologists (IMETS) on staff available for wildfire, HAZMAT, or other emergency dispatches. To request an IMET, contact the appropriate fire agency dispatch office.

## **NON-FORECAST SERVICES:**

There are several duties that fall into the non-forecast services, including but not limited to teaching assignments, customer meetings, customer consultations, preparation of annual reports and annual operating plans, program management, research, and in-house training of personnel.

There is a need for advanced notice (**3 weeks**) for teaching assignments, customer meetings, and consultations. The National Weather Service-National Weather Service Employee Organization negotiated agreement provides rules for scheduling of bargaining unit employees. NWS management has limitations regarding modification of the work schedule after it has become fixed without paying overtime.

All requests for teaching assignments, customer meetings, and customer consultations will be honored provided they are scheduled more than three weeks ahead of time, and they do not conflict with other Fire Weather commitments. Every effort will be made to honor requests within three weeks pending schedule availability. Please contact Jon Bonk at NWS Pendleton (541) 276-8134 or by e-mail (jon.bonk@noaa.gov) to schedule these services.

## **USER AGENCY RESPONSIBILITIES:**

There are several responsibilities of the user agencies including:

- Entering of 1300 PST NFDRS observations in WIMS.
- Site observations for Spot forecast requests. **A representative observation from the burn site is required for all prescribed fire spot forecast requests.**
- Quality Control of RAWs observations
- Timely maintenance of RAWs sites.

## **FORECAST VERIFICATION:**

Routine verification will be made on Red Flag Warnings and Spot Forecast turnaround times. Additionally, NFDRS trend forecasts for temperature, relative humidity, and fuel moisture will be verified. Results of the verification will be published in the Fire Weather Annual Summary and placed on the office's Fire Weather homepage.

## **FIRE WEATHER FORECASTER PROFICIENCY & CURRENCY STANDARDS:**

Pendleton forecasters working Fire Weather shifts will meet the proficiency standards established by the National Weather Service. The National Weather Service and the Pacific Northwest Wildfire Coordination Group will review the progress in meeting the standards. Prior to each fire season, the Annual Operating Plan will provide a list of currently qualified forecasters and those expected to be providing fire weather services during the upcoming year.



## **FORECAST DISTRICT:**

The Pendleton Fire Weather District currently covers the east slopes of the Cascades mountain range from the Deschutes National Forest to the alpine reaches of the Yakama Indian Reservation, Central Oregon, the northeast quadrant of Oregon (including Baker county and Harney county north of highway 20), and Southeast Washington (Benton, Franklin, Klickitat, Yakima Walla Walla, Columbia, Garfield and Asotin counties). Please see the district map for specific outlines of the Fire Weather Zones.

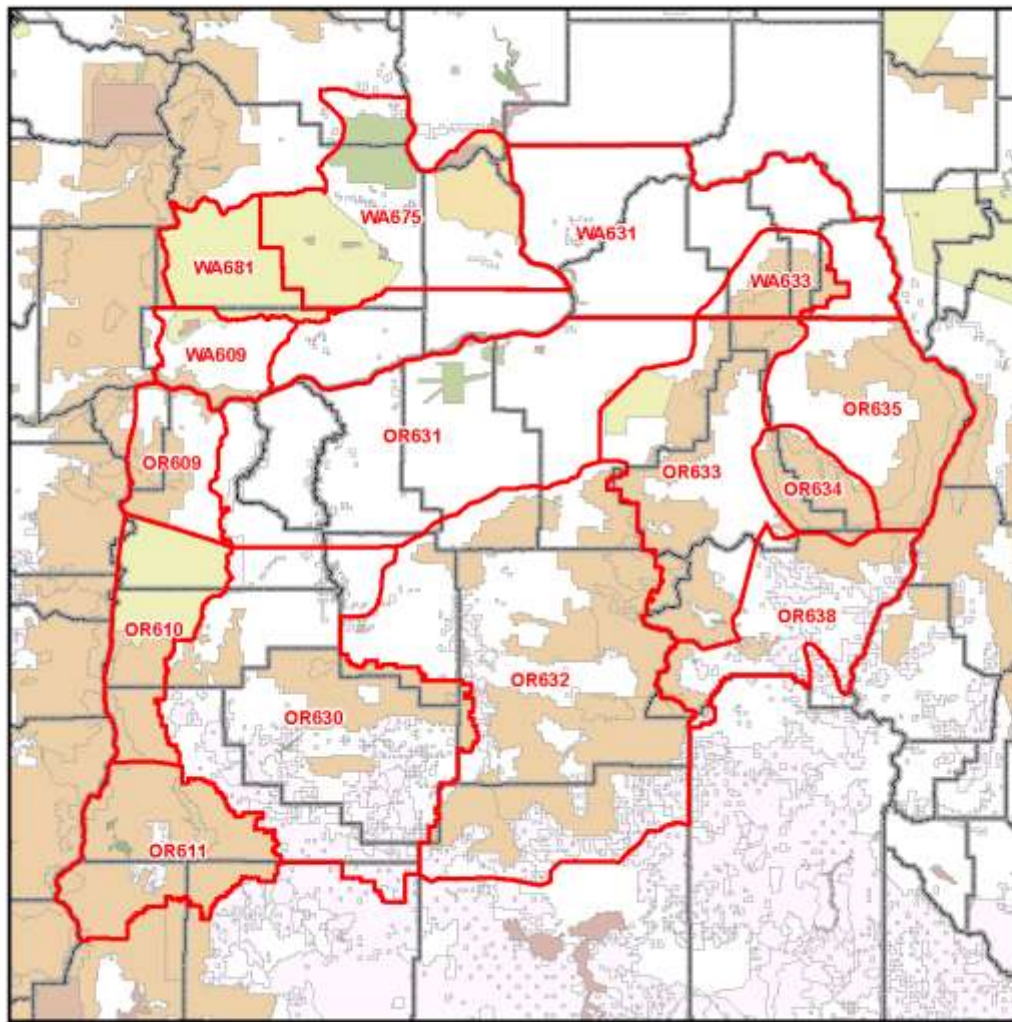
## **GEOGRAPHICAL FORECAST ZONES (See Zone Map):**

The Pendleton Fire Weather forecast will be sectioned by Fire Weather Zone.

OR609/WA609, OR631/WA631, and OR633/WA633 will typically be combined in a single zone forecast unless conditions warrant separating them. This will usually result in 12 separate zone forecasts. These zones are based on terrain, elevation, weather characteristics, and political boundaries. The zone names are as follows:

OR609 – East slopes of the northern Oregon Cascades  
WA609– East slopes of the southern Washington Cascades  
OR610– East slopes of the central Oregon Cascades  
OR611 – Deschutes National Forest  
OR630– Central mountains of Oregon  
OR631 – Lower Columbia Basin of Oregon  
WA631– Lower Columbia Basin of Washington  
OR632 – Southern Blue and Strawberry mountains  
OR633 – Northern Blue mountains of Oregon and Washington  
WA633 – Blue mountains of Washington  
OR634 – Eagle Caps  
OR635 – Wallowa County  
OR638 – Baker Valley  
WA675– Eastern Washington southern Columbia Basin  
WA681– Yakama Alpine

## Pendleton Fire Weather Zones



### Legend

- Fire Zones
- Counties
- Federal Lands
  - BIA
  - BLM
  - BOR
  - DOD
  - FS
  - FWS
  - NPS
  - OTHER
- States



## Pendleton Fire Weather Station Index

| Zone   | Name           | NFDRS  | Type   | Agency | Lat     | Long     | Elev | Slope/Aspect   |
|--------|----------------|--------|--------|--------|---------|----------|------|----------------|
| WA 609 | Goldendale     | 452403 | Raws   | DNR    | 45.8672 | 120.7230 | 1650 | Flat knob-S    |
| WA 609 | The Dalles     | 452406 | Metar  | FAA    | 45.6190 | 121.1657 | 210  | W-E valley     |
| OR 609 | Middle Mtn     | 350812 | Raws   | ODF    | 45.5794 | 121.5970 | 2500 | N-S Ridge      |
| OR 609 | Pollywog       | 350912 | Raws   | USFS   | 45.4586 | 121.4464 | 3320 | Low slope-S    |
| OR 609 | Wamic Mill     | 350913 | Raws   | USFS   | 45.2333 | 121.4500 | 3320 | Upp slope-S    |
| OR 609 | Wasco Butte    | 350919 | Raws   | ODF    | 45.6167 | 121.3353 | 2345 | Butte top      |
|        |                |        |        |        |         |          |      |                |
| 610    | Sidwalter      | 350909 | Manual | BIA    | 44.925  | 121.5347 | 3600 | Butte top-Nw   |
| 610    | Mt Wilson      | 350916 | Raws   | BIA    | 45.0397 | 121.6736 | 3780 | Mid slope-Sw   |
| 610    | Mutton Mtn     | 350917 | Raws   | BIA    | 44.9255 | 121.1978 | 4100 | S-N Ridge      |
| 610    | He He 1        | 350920 | Raws   | BIA    | 44.9559 | 121.4992 | 2689 | Flat           |
| 610    | Shitike Butte  | 352102 | Manual | BIA    | 44.7449 | 121.6106 | 5000 | Butte top      |
| 610    | Eagle Butte    | 352106 | Manual | BIA    | 44.8399 | 121.2338 | 3100 | Butte top      |
| 610    | Warm Spring    | 352108 | Manual | BIA    | 44.7750 | 121.2541 | 1632 | Valley         |
| 610    | Metolius Arm   | 352110 | Raws   | BIA    | 44.6275 | 121.6147 | 3440 | Butte-Sw       |
| 610    | Colgate        | 352620 | Raws   | USFS   | 44.3156 | 121.6022 | 3280 | Flat           |
|        |                |        |        |        |         |          |      |                |
| 611    | Round Mtn      | 352605 | Raws   | USFS   | 43.7575 | 121.7102 | 5900 | Butte top      |
| 611    | Lava Butte     | 352618 | Raws   | USFS   | 43.9253 | 121.3429 | 4655 | Butte top-S    |
| 611    | Tepee Draw     | 352622 | Raws   | USFS   | 43.8322 | 121.0842 | 4740 | Low slope-E    |
| 611    | Black Rock     | 353342 | Raws   | USFS   | 43.527  | 121.8090 | 4880 | Low slope-S    |
| 611    | Cabin Lake     | 353402 | Raws   | USFS   | 43.4956 | 121.0597 | 4545 | Flat           |
| 611    | Tumalo Ridge   | 352621 | Raws   | ODF    | 44.0493 | 121.4001 | 4000 | Ridge-Nw       |
|        |                |        |        |        |         |          |      |                |
| 630    | Haystack       | 352107 | Raws   | USFS   | 44.4494 | 121.1297 | 3240 | Flat           |
| 630    | Brown's Well   | 353428 | Raws   | BLM    | 43.5628 | 121.2360 | 4500 | Flat knob-Sw   |
| 630    | Cold Springs   | 352701 | Raws   | USFS   | 44.3550 | 120.1335 | 4695 | Flat           |
| 630    | Salt Creek     | 352712 | Raws   | BLM    | 44.0467 | 120.6694 | 4200 | Flat           |
| 630    | Badger Creek   | 352711 | Raws   | USFS   | 44.0311 | 120.4083 | 5680 | Mid slope-flat |
| 630    | Slide Mountain | 352207 | Raws   | USFS   | 44.4622 | 120.2945 | 5700 | Upp slope-Ne   |
| 630    | Brer Rabbit    | 352208 | Raws   | USFS   | 44.333  | 119.770  | 5900 | Valley-S       |
| 630    | Board Hollow   | 350915 | Raws   | ODF    | 44.6038 | 120.6847 | 4200 | Ridge-flat     |
|        |                |        |        |        |         |          |      |                |
| WA631  | Juniper Dunes  | 453201 | Raws   | BLM    | 46.3575 | 118.8683 | 950  | Flat           |
| WA631  | Walla Walla    | 453302 | Manual | NWS    | 46.0945 | 118.2858 | 1166 | Flat           |
| OR631  | Patjens        | 351001 | Raws   | BLM    | 45.3219 | 120.9292 | 2230 | Ridge-Sw       |
| OR631  | North Pole Rdg | 350915 | Raws   | BLM    | 45.0329 | 120.5357 | 3500 | Ridge-W        |
| OR631  | Umatilla NWR   | 351316 | Raws   | USFWL  | 45.9180 | 119.5675 | 270  | Flat           |
| OR631  | Pendleton      | 351307 | Manual | NWS    | 45.6975 | 118.8344 | 1482 | Ridge-flat     |

|       |                |        |      |       |         |          |      |                |
|-------|----------------|--------|------|-------|---------|----------|------|----------------|
| 632   | Case           | 352329 | Raws | USFS  | 44.9711 | 118.9297 | 3800 | Ridge-flat     |
| 632   | Tupper         | 351202 | Raws | USFS  | 45.0667 | 119.4925 | 4200 | Low slope-S    |
| 632   | Board Creek    | 352330 | Raws | BLM   | 44.5930 | 119.2770 | 5000 | Ridge          |
| 632   | Keeney 2       | 352332 | Raws | USFS  | 44.6661 | 118.9219 | 5120 | Ridge          |
| 632   | Crow Flat      | 353515 | Raws | USFS  | 43.8413 | 118.9521 | 5130 | Valley-S       |
| 632   | Allison        | 353501 | Raws | USFS  | 43.9214 | 119.5964 | 5320 | Valley-S       |
| 632   | Fall Mountain  | 353524 | Raws | USFS  | 44.2970 | 119.0370 | 5949 | Sw-Ne Ridge    |
| 632   | Antelope       | 353524 | Raws | BLM   | 44.0384 | 118.4163 | 6460 | N-S Ridge      |
| 632   | Mitchell       | 352209 | FTS  | ODF   | 44.5819 | 120.1806 | 2550 | Nw-Se Valley   |
| 632   | Crane Prairie  | 352305 | Raws | USFS  | 44.1601 | 118.4704 | 5373 | Valley-S       |
|       |                |        |      |       |         |          |      |                |
| OR633 | Eden           | 351518 | Raws | USFS  | 45.8763 | 117.6160 | 3500 | Upp slope-S    |
| WA633 | Alder Ridge    | 453803 | Raws | USFS  | 46.2685 | 117.4983 | 4550 | Ridge-S        |
| OR633 | J Ridge        | 351414 | Raws | USFS  | 45.1135 | 118.4051 | 5180 | Upp slope-Se   |
| OR633 | Black Mtn Rdg  | 351319 | Raws | USFS  | 45.5738 | 118.2385 | 4965 | Ridge-Sw       |
| OR633 | Lagrande 1     | 351417 | Raws | ODF   | 45.5508 | 118.0133 | 3079 | Low slope-E    |
|       |                |        |      |       |         |          |      |                |
| 634   | Point Prom 2   | 351419 | Raws | USFS  | 45.3547 | 117.7044 | 6600 | N-S Ridge      |
| 634   | Minam          | 351416 | Raws | USFS  | 45.3539 | 117.6328 | 3590 | Se-Nw Valley   |
|       |                |        |      |       |         |          |      |                |
| 635   | Roberts Butte  | 351520 | Raws | USFS  | 45.6811 | 117.2067 | 4300 | N-S Ridge      |
| 635   | Harle Butte    | 351502 | Raws | USFS  | 45.3282 | 116.8774 | 6071 | Butte top-S    |
|       |                |        |      |       |         |          |      |                |
| 638   | Elk Creek      | 352126 | Raws | USFS  | 44.7577 | 117.9711 | 6576 | Upp Slope      |
| 638   | Blue Canyon    | 352416 | Raws | BLM   | 44.6700 | 117.9336 | 4200 | Low slope Sw   |
| 638   | Sparta Butte   | 352418 | Raws | USFS  | 44.8850 | 117.3383 | 4300 | Mid slope-Sw   |
| 638   | Flagstaff Hill | 352123 | Raws | BLM   | 44.8141 | 117.7289 | 3945 | Hill Top-W     |
| 638   | Morgan Mtn     | 352420 | Raws | BLM   | 44.5014 | 117.2983 | 4200 | N-S Ridge      |
| 638   | Yellowpine     | 352124 | Raws | USFS  | 44.5263 | 118.3230 | 4200 | Low slope-E    |
|       |                |        |      |       |         |          |      |                |
| 675   | Saddle Mtn     | 452701 | Raws | USFWL | 46.6944 | 119.6936 | 650  | Flat           |
| 675   | High Bridge    | 452318 | Raws | BIA   | 46.0811 | 120.5440 | 2106 | Mid slope-N    |
|       |                |        |      |       |         |          |      |                |
| 681   | Signal Peak    | 452307 | Raws | BIA   | 46.2269 | 121.1375 | 5052 | Ridge-S        |
| 681   | Mill Creek     | 452304 | Raws | BIA   | 46.2625 | 120.8622 | 2928 | Mid slope-flat |
| 681   | Teepee Creek   | 452317 | Raws | BIA   | 46.1642 | 121.0331 | 2980 | Mid slope-flat |
| 681   | Grayback       | 452404 | Raws | DNR   | 45.9908 | 121.0838 | 3766 | Ridge          |